

# PATENT COOPERATION TREATY

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INTERNATIONAL SEARCHING AUTHORITY

# PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

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Date of mailing  
(day/month/year) see form PCT/ISA/220 (page 2)

Applicant's or agent's file reference  
see form PCT/ISA/220

## FOR FURTHER ACTION

See paragraph 2 below

International application No.  
PCT/DE2004/001449

International filing date (day/month/year)  
7/7/2004

Priority date (day/month/year)  
9/12/2003

International Patent Classification (IPC) or both national classification and IPC  
B81C1/00

Applicant  
Robert Bosch GMBH

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority \*
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/DE2004/001449

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	4,5	YES
	Claims	103, 6-8	NO
Inventive step (IS)	Claims	none	YES
	Claims	1-8	NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims	none	NO

2. Citations and explanations:

see supplementary page

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/DE2004/001449

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
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International application No.  
PCT/DE2004/001449

Box No. II    Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

see supplementary page

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY  
SUPPLEMENTARY PAGE

International file No. PCT/DE2004/001449

On Point V

Reasoned statement under Article 35(2) with regard to novelty, inventive step, and industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1: TILLACK B ET AL.: "MONITORING OF DEPOSITION AND DRY ETCHING OF SI/SIGE MULTIPLE STACKS" JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY: PART B, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 14, issue 1, 1996, pages 102-105, X000198643 ISSN: 1071-1023
- D2: US-B-6 198 0981 (LAOU PHILIPS) March 6, 2001 (2001-03-06)
- D3: US-B-6 210 9881 (FRANKE ANDREA ET AL.) April 3, 2001 (2001-04-03)
- D4: PREMACHANDRAN C S ET AL.: "A novel electrically conductive wafer through hole filled via interconnect for 3D MEMS packaging" 2003 PROCEEDINGS 53RD ELECTRONIC COMPONENTS AND TECHNOLOGY CONFERENCE. (ECTC). NEW ORLEANS, LA, MAY 27 - 30, 2003, PROCEEDINGS OF THE ELECTRONIC COMPONENTS AND TECHNOLOGY CONFERENCE, NEW YORK, NY: IEEE, US, vol. CONF. 53, May 27, 2003 (2003-05-27), pages 627-630, XP010648307 ISBN: 0-7003-7991-5
2. The present application does not fulfill the requirements of Article 33(1) PCT, because the object of Claims 1 and 7 is not novel as defined in Article 33(2) PCT.
- 2.1 Document D1 discloses (cf. paragraph "Introduction", the references in parentheses relate to this document):

A method for producing etched holes and/or etched trenches on components ("novel electronic and optoelectronic devices") based on silicon ("Si/SiGe") and/or a layered silicon/insulator structure,

wherein a germanium-containing layer and/or a germanium layer is provided at the point at which or in whose surroundings an etching procedure is to be completed ("selectively etch a layer of Si on GeSi or SiGe on Si"), during the etching procedure germanium and/or germanium compounds are detected ("optical emission spectroscopy"), and the etching procedure is controlled, in particular interrupted, as a function of the detection of germanium and/or germanium compounds (cf. paragraph IV: "... accurate indicator which allows an etch stop within any of the thin films in the stack").

The object of Claim 1 is therefore not novel as defined in Article 33(2) PCT.

- 2.2 Document D2 discloses (cf. Figure 2 and associated parts of the description, the references in parentheses relate to this document):

A diaphragm sensor unit having a substrate made of silicon (2) or a layered silicon/insulator structure, which comprises a flat diaphragm (3, 4, 6, 7) for implementing a sensor element structure for a sensor ("infrared sensor"),

wherein a germanium and/or germanium-containing layer (7) is provided in the layered structure.

The object of Claim 7 is therefore not novel as defined in Article 33(2) PCT.

The object of Claim 7 is also not novel in regard to document D3 (Article 33(2) PCT).

- 2.3 Dependent Claims 2-6 and 8 do not contain any features which would fulfill the requirements of the PCT in regard to novelty and/or inventive step in combination with the features of any claim to which they refer.

Lack of novelty (Article 33(2) PCT):

Claims 2, 5, 6: additional features of D1 known (see International Search Report)

Claim 8: additional feature of D2 known (see International Search Report)

Lack of inventive step (Article 33(3) PCT):

Claims 4, 5: The additional features are disclosed in Document D4 in a comparable context for another material (see "Abstract").

Claim 4 is unclear. It is interpreted in such a way that the layer (11) is removed after the etching procedure is completed (Article 6 PCT).